

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 June 2005 (30.06.2005)

PCT

(10) International Publication Number
WO 2005/060135 A1

(51) International Patent Classification⁷: **H04J 11/00**

(21) International Application Number:
PCT/KR2004/003343

(22) International Filing Date:
17 December 2004 (17.12.2004)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2003-0092317
17 December 2003 (17.12.2003) KR

(71) Applicants (*for all designated States except US*): Electronics and Telecommunications Research Institute [KR/KR]; 161, Gajeong-dong, Yuseong-gu, Daejeon, 305-350 (KR). SAMSUNG ELECTRONICS CO., LTD. [KR/KR]; 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, 442-742 (KR). KT Corporation [KR/KR]; 206, Jungja-dong, Bundang-gu, Seongnam-city, Gyeonggi-do, 463-711 (KR). SK Telecom

Co., Ltd. [KR/KR]; 99, Seorin-dong, Jongro-gu, Seoul, 110-110 (KR). KTFREETEL CO., LTD. [KR/KR]; 890-20, Daechi-dong, Gangnam-gu, Seoul, 135-280 (KR). HANARO TELECOM, INC. [KR/KR]; Shindongah Fire & Marine Insurance Building 43, Taepyeongno 2-ga, Jung-gu, Seoul, 100-733 (KR).

(72) Inventors; and

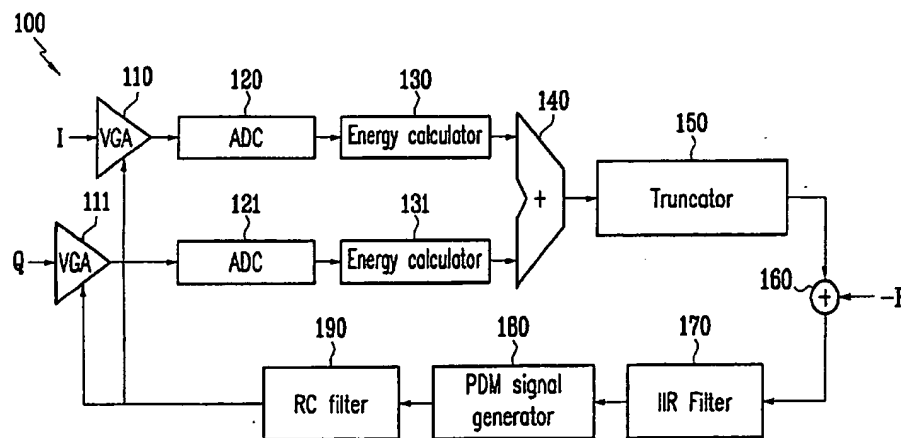
(75) Inventors/Applicants (*for US only*): LEE, Yong-Su [KR/KR]; 302, 954, Galma-dong, Seo-gu, Daejeon-city, 302-171 (KR). PARK, Youn-Ok [KR/KR]; Cheonggu Narae Apt. 101-1002, Jeonmin-dong, Yuseong-gu, Daejeon-city, 305-390 (KR). KIM, Jun-Woo [KR/KR]; Yongsin Evervill 306, 118-20, Sinseong-dong, Yuseong-gu, Daejeon-city, 305-345 (KR). KIM, Dae-Ho [KR/KR]; 236-1, Gajeong-dong, Yuseong-gu, Daejeon-city, 305-350 (KR).

(74) Agent: YOU ME PATENT AND LAW FIRM; Seolim Bldg., 649-10, Yoksam-dong, Kangnam-ku, Seoul 135-080 (KR).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

[Continued on next page]

(54) Title: AUTOMATIC GAIN CONTROL APPARATUS AND METHOD IN ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING



(57) Abstract: Disclosed is an automatic gain control device in an orthogonal frequency division multiplexing system. A variable gain amplifier controls a gain of an input signal; an energy calculator calculates an energy of the input signal; a truncator accumulates the calculated energies, finds an average thereof, and generates a DC offset of the input signal; a subtracter subtracts a predefined reference value from the DC offset, and outputs a signal; and an RC filter feeds the value output by the subtracter back to the variable gain amplifier so that the value output by the subtracter may be used for an automatic gain control. The predefined reference value given to be 4.0v is a reference power generated based on a saturation to RMS ratio for minimizing the bit error rate of the orthogonal frequency division multiplexing system.



AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.